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File: USPT

Sep 11, 2001

DOCUMENT-IDENTIFIER: US 6289377 B1

TITLE: Dynamic network configuration of a one-way adapter using a proxy agent that communicates with a resource server through a configured return path adapter

Detailed Description Text (14):

FIG. 1 illustrates a system architecture in accordance with the present invention. The architecture includes a MSO/cable operator's network 110, a client PC 120, which may be located at a user's home, an ISP phone network 140 (e.g., switching facility), and a computer network 150 such as the Internet. The MSO/cable operator's network 110 includes a MSO router 116 for communicating with the Internet 150, a cable network address server 114 for assigning DHCP address to different cable modems served by the network 110, and a broadband network hub 112 that provides data on an RF channel 118 to a population of cable modems. An IP decapsulator module 148 may also be associated with the cable operator's network 110.

Detailed Description Text (21):

The PPRA 124 looks at all packets received from the protocol stack bound to a one-way adapter. In the illustrated embodiment, the one-way adapter is the cable modem 122, which only receives downstream information from the cable television network 114 via the RF channel 118. In addition, the relay agent 124 monitors all packets sent to, and received from, the return path adapter, which in the illustrated embodiment is the phone modem 126. At a minimum, the PPRA 124 forwards packets at the data link layer from the one-way adapter 122 to the return path adapter 126.

Detailed Description Text (25):

As mentioned, the address of the phone modem 126 is assigned using the IPCP, while preferably the address of the cable modem 122 is assigned using a DHCP. Network provisioning using DHCP requires bidirectional communication with the DHCP cable network address server 114 through the adapter that needs the configuration parameters, e.g., the cable adapter 122.

Detailed Description Text (32):

In response to the request, the IP address for the cable modem and network initialization information from the cable network address server 114 is received at the phone modem adapter 126 via the Internet 150 and the ISP phone network 140. Once the cable modem stack is initialized, all data communicated to the cable modem stack is received at the cable modem 122 and does not come through the phone modem 126.

Detailed Description Text (37):

Note that data received by the cable modem driver from the PPRA (e.g., from "A" 312) may include session initialization data for establishing a session with the

Internet. Moreover, DHCP transactions at session initialization of the cable modem require two-way communication with the cable network address server 114. The initialization data is sent from the cable network address server 114 to the phone modem interface, and is intended to be sent to the cable modem stack.

Detailed Description Text (55):

At block 810, the PPRA may modify the DHCP session initialization request packet with "relay agent/proxy agent" functionality. Additionally, the IP address of the phone modem (see block 730 of FIG. 7) is inserted in the packet as the "relay agent" address. Furthermore, the IP packet destination address is set to that of the cable network address server (e.g., server 114 in FIG. 1), also known as the DHCP server address.

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(L1 AND 114).USPT.	1

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[Previous Page](#) [Next Page](#) [Go to Doc#](#)